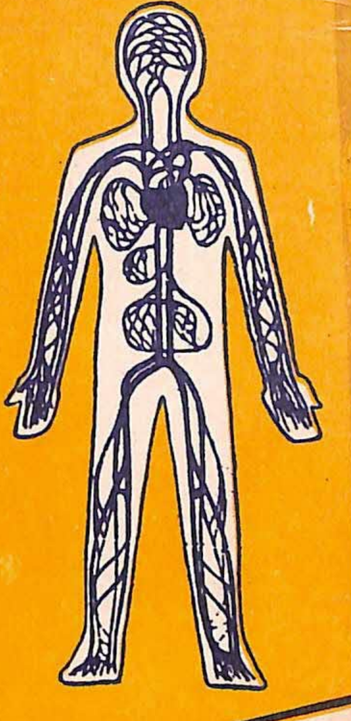
Workbook to SCIENCE



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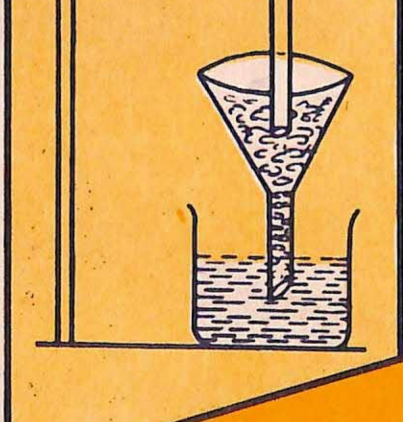

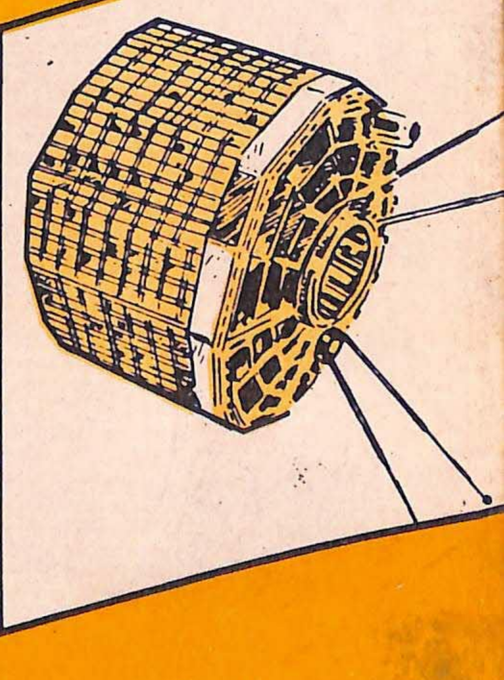

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WORKBOOK TO SCIENCE

PART I

Based on the revised syllabus of Integrated Science of N.C.E.R.T. for Middle Classes under the New Education Policy.

WORKBOOK TO SCIENCE

PART I

(For Class VI)

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- The Federation of Educational Publishers In India, New Delhi-55

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PREFACE

This workbook has been prepared strictly according to the Science syllabus for Class VI under the New Education Policy of Indian Schools.It follows the NCERT textbook chapterwise and hence will prove invaluable to students of Class VI. The questions which are probing and challenging, would help the student to thoroughly understand the concepts dealt with in the text -book. The exercises would give students the much needed practice in the skills of collecting data and applying the knowledge gained to everyday situations and in this way, further reinforce their command of the subject.

The answers as filled in by the students will enable the teachers to gauge and evaluate the student's progress towards specific goals of achievements i.e., their ability to express their knowledge, the extent of their understanding of the science vocabulary used in the text, their mastery of facts, their proficiency in using their freshly acquired skills, to identify, think and answer questions.

The authors hope that this book will be able to create in the mind of the students, an active interest in the study of Science.

There is always scope for improvement. Such improvements depend upon the suggestions of students, parents and classroom teachers. Their comments are most welcome.

We are thankful to the publishers M/s Pitambar Publishing Company for bringing out this book in the shortest possible time.

—*Authors*

CONTENTS

Chapter *Page*

1. Science in Everyday life 1
2. Things Around Us 8
3. Separation of Substances 27
4. Measurement 32
5. Changes Around Us 44
6. Motion, Force and Machines 48
7. The Living World 67
8. Structure and Function of the Living Body 74
9. Air 83
10. Water 87
11. Energy 93
12. Balance in Nature 105
13. The Universe 115

CHAPTER 1

SCIENCE IN EVERYDAY LIFE

It is important for us to study science for many reasons, some of which are:

(i) because it keeps us in good health;
(ii) because it helps to produce things we use;
(iii) because it makes work easier for us;
(iv) because it helps us to enjoy our leisure;
(v) because it makes us feel comfortable in our house;
(vi) because it makes communications easy;
(vii) because it helps us to change our ways of thinking;
(viii) because it shows us the scientific method of solving problems.

Reading, listening to elders; observing keenly and clearing our doubts by consulting experts are the ways of acquiring knowledge.

The scientific method consists of the following steps:

(i) Observation
(ii) Gathering basic information
(iii) Identifying the problem
(iv) Thinking about the probable causes
(v) Testing each of the probable causes through keen observation and experimentation
(vi) Finding out the result and drawing conclusions
(vii) Correcting ideas, whenever necessary

Science should be used for the welfare of the people and not for harming them. Science, while it makes mankind happy by its latest achievements, also makes it unhappy when it shows its destructive power.

Q. 1. Name the Indian scientist who studied the sensitivity of plants in detail.

....

Q. 2. State two ways in which science has made people more healthy.

(iv) The method of curing diseases using plants as medicines is called..............................

(v) Alexander Fleming discovered a very effective medicine called....................................

(vi) Leeuwenhock prepared a.................................and observed many tiny things.

(vii) The............................and the .... give us information of events occuring even in far-away countries.

(viii) A farmer working in the field and a potter making earthen pots use ....methods.

Q. 6. State the various steps that you would take to find out whether the water available in your locality is fit for drinking or not?

(i) ....

(ii) ....

(iii) ....

(iv) ....

(v) ....

Q.7. (a) What is meant by the scientific method?

....

....

....

....

(b) State the various steps a scientist follows in solving a problem.

(i) ....

(ii) ....

(iii) ....

(iv) ....

(v) ....

(vi) ....

(vii) ....

Q. 8. Name four world famous scientists and mention their contributions to science.

Name of the Scientist *Contribution*

(i) ....

(ii) ....

(iii) ....

(iv) ....

Q. 9. State five ways in which you think science has made our lives more comfortable.

(i) ....

(ii) ....

(iii) ....

(iv) ....

(v) ....

Q. 10. Match the following:

Scientist	Radium
Communication	mode of sending messages
Television	thinks over the observations and possibilities
Madame Curie	celebrations in countries overseas
X–Rays	reconnect cut nerves
Laser beams	produce shadow of bones

Q. 11. How has science made our world look smaller?

Q. 12. Mention three advantages and two disadvantages of factories.

Advantages :

(i) ....

(ii) ....

(iii) ....

Disadvantages :

(i) ....

(ii) ....

Q. 13. Many people argue that science has made the world a more dangerous place to live in because accidents and deaths due to moving vehicles (cars, buses; planes, etc.) increase every year. Put up an argument against this belief.

....

....

....

Q. 14. How can you make yourself audible in a large gathering?

....

....

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....

....

Q. 15. How has science improved the distribution of the common things we use?

....

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....

Q. 16. How has science proved advantageous with regard to the following ?

Then	*Now*
Plough	tractor
Cycle	car
Hand–stitching	sewing–machine
Pigeon carrying message	telephone
Drawing water from a well	pump
Writing	typing
Handfan	ceiling fan
Cotton clothes	nylon clothes

....

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....

Q. 17. In the following statements write 'T' against those statements which are true and 'F' against those which are false:–

(i) Train is the fastest mode of transportation. ....

(ii) Gathering information by asking questions is the scientific approach. ....

(iii) Aryabhatta was a well-known Indian mathematician. ....

(iv) Quality of clothes, medicines and entertainment has considerably improved through science and its application. ....

☐

CHAPTER 2

MATERIALS AROUND US

There are many materials and objects which are:

(i) Natural, (ii) Man-made, (iii) Living, (iv) Non-living, (v) Visible, (vi) Not visible, (vii) Able to flow, (viii) Not able to flow, (ix) Transparent, (x) Opaque, (xi) Solid, (xii) Liquid, (xiii) Gases, (xiv) Heavenly bodies.

Anything which has mass and occupies space is called matter.
There are three states of matter (i) Solids, (ii) Liquids, (iii) Gases.
There are properties *stated by* all objects and materials.

Scientists have always been discovering and inventing new materials and these discoveries have been important steps in the progress of man.

We should never waste materials but recycle it. We can prevent pollution of environment.

Q. 1 Name *three* materials and objects which are :

(i) Natural	(ii) Man-made
(a)	(a) ....
(b)	(b) ....
(c)	(c) ....

(iii) Living	(iv) Non-living
(a)	(a) ....
(b)	(b) ....
(c)	(c) ....

(v) Visible

(a) ....

(b) ....

(c) ....

(vi) Non-visible

(a) ....

(b) ....

(c) ....

(vii) Able to flow

(a) ....

(b) ....

(c) ....

(viii) Not able to flow

(a) ....

(b) ....

(c) ....

(ix) Transparent

(a) ....

(b) ....

(c) ....

(x) Opaque

(a) ....

(b) ....

(c) ....

(xi) Solid

(a) ....

(b) ....

(c) ....

(xii) Liquid

(a) ....

(b) ....

(c) ....

(xiii) Gases

(a) ....

(b) ....

(c) ....

(xiv) Heavenly bodies

(a) ....

(b) ....

(c) ....

Q. 2. *Name the three states of matter.*

1 ………………………… 2 …………………………

3 …………………………

Q. 3. *Complete the statements:*

1. All materials in the universe are made up of…………………… ……………………and……………………………………………

2. There are about……………………elements in the universe and each element is made up of its……………………………………

3. ……………………combine to produce……………………………

4. ……………………consist of molecules made up of different types of atoms.

5. The properties of any material are due to the……………………of the elements and the compounds of which it is made of.

6. We should never waste……………………………………………

7. Garbage from our homes can be……………………and…………… …………made in this way is called…………………………………

8. Pollution of the environment means……………………………

9. There are about……………………………elements which are found ……………………………and the others are……………………………

10. All atoms of any……………………………are alike but…………… ……………………differ from……………………………………

Q. 4. *Fill in the blanks :*

1. The process by which water changes into steam is called…………… ……………………………………………………………………

2. The process by which steam changes into water is called…………… ……………………………………………………………………

3. Intermingling of molecules of one substance with those of another substance is called..

4 Lead chloride is a..

5. Sulphur is an..

Q. 5. How do you distinguish between solids, liquids and gases?

Solids	Liquids	Gases
....	....	....
....	....	....
....	....	....
....	....	....

Q. 6. What are:
(i) Elements (ii) Atoms (iii) Molecules (iv) Compounds (v) Mixtures (vi) Elasticity (vii) Plasticity

Give *three* examples in each case.

(i) Elements : ....

....

....

....

....

Examples :

(a) .... (b) .... (c) ....

(ii) Atoms : ....

....

....

....

Examples

(a) .... (b) .... (c) ....

(iii) Molecules : ....

....

....

....

Examples

(a) .... (b) .... (c) ....

(iv) Compounds : ....

....

....

....

Examples

(a) .... (b) .... (c) ....

(v) Mixtures : ....

....

....

....

Examples

(a) .... (b) .... (c) ....

(vi) Elasticity : ....

....

....

....

Examples

(a) .... (b) .... (c) ....

(vii) Plasticity : ....

....

....

....

....

Examples

(a) .... (b) .... (c) ....

Q. 7. Read the following sentences and retain *True* for the correct ones and *False* for the wrong ones:

1. All liquids and gases flow whereas solids do not flow. (True/False)
2. Liquids and gases can be stored only in a closed container. (True/False)
3. Liquids and gases can act as solvents whereas solids cannot. (True/False)
4. It is very easy to heap a liquid or a gas. (True/False)
5. We can scratch solids but not liquids and gases. (True/False)
6. Liquids and gases spread all over the container. (True/False)
7. Different solids have the same properties. (True/False)
8. In a solid, the atoms have very little freedom to move around. (True/False)
9. New materials and objects are always better than the existing ones. (True/False)

10. When elements come together to give compounds, the compounds have some properties which none of the elements had. (True/False)

Q. 8. Give two examples of solids for each of the following categories:

(a) Solids which are very hard

(i) .... (ii) ....

(b) Solids which are very soft

(i) .... (ii) ....

(c) Solids which are in between hard and soft

(i) .... (ii) ....

(d) Solids which are colourless

(i) .... (ii) ....

(e) Solids which are heavily coloured

(i) .... (ii) ....

(f) Solids which are stretchable

(i) .... (ii) ....

(g) Solids which are not stretchable

(i) .... (ii) ....

(h) Solids which are plastic

(i) .... (ii) ....

(i) Solids which melt easily

(i) .... (ii) ....

(j) Solids which have high melting point

(i) .... (ii) ....

(k) Solids which can be beaten into very thin sheets

(i) .... (ii) ....

(l) Solids which cannot be beaten into thin sheets

(i) .... (ii) ....

(m) Solids which can be drawn into very thin sheets

(i) .... (ii) ....

(n) Solids which float in water

(i) .... (ii) ....

(o) Solids which dissolve in water

(i) .... (ii) ....

(p) Solids which conduct heat well

(i) .... (ii) ....

(q) Solids which do not conduct heat well

(i) .... (ii) ....

(r) Solids which conduct electricity

(i) .... (ii) ....

(s) Solids which do not conduct electricity

(i) .... (ii) ....

(t) Solids which catch fire

(i) .... (ii) ....

(u) Solids which are magnetic

(i) .... (ii) ....

(v) Solids which are not magnetic

(i) .... (ii) ....

(w) Solids which smell

(i) .... (ii) ....

(x) Solids which are living

(i) .... (ii) ....

Q. 9. Give *two* examples of liquids for each of the following categories:

(i) Liquids which are colourless

(a) .... (b) ....

(ii) Liquids which are coloured

(a) .... (b) ....

(iii) Liquids which flow easily

(a) .... (b) ....

(iv) Liquids which do not flow easily

(a) .... (b) ....

(v) Liquids which are thick

(a) .... (b) ....

(vi) Liquids which appear thin

(a) .... (b) ....

(vii) Liquids which do not smell

(a) .... (b) ....

(viii) Liquids which smell

(a) .... (b) ....

(ix) Liquids which can dissolve substances like sugar, salt or paint

(a) .... (b) ....

(x) Liquids which cannot dissolve sugar, salt or paint

(a) .... (b) ....

(xi) Liquids which can solidify

(a) .... (b) ....

(xii) Liquids which do not solidify

(a) .... (b) ....

(xiii) Liquids which catch fire easily

(a) .... (b) ....

(xiv) Liquids which do not catch fire easily

(a) .... (b) ....

(xv) Liquids which are used to put out fire

(a) .... (b) ....

(xvi) Liquids which boil easily

(a) .... (b) ....

(xvii) Liquids which boil at very high temperatures

(a) .... (b) ....

Q.10. Give two examples of gases for each of the following categories :

(a) Gases which smell

(i) .... (ii) ....

(b) Gases which do not smell

(i) .... (ii) ....

(c) Gases which become liquid easily

(i) .... (ii) ....

(d) Gases which do not become liquid easily

(i) .... (ii) ....

(e) Gases which catch fire easily

(i) .... (ii) ....

(f) Gases which do not catch fire easily

(i) .... (ii) ....

(g) Gases which are lighter than air

(i) .... (ii) ....

(h) Gases which are heavier than air

(i) .... (ii) ....

Q. 11. Why is grouping of objects and materials as solids, liquids and gases specially useful?

....

....

....

....

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....

……………………………………………………………………………

……………………………………………………………………………

……………………………………………………………………………

………… ………………………………………………………………

Q. 12. Name the properties which are common to all solids.

……………………………………………………………………………

……………………………………………………………………………

……………………………………………………………………………

……………………………………………………………………………

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Q. 13. What properties do all liquids have in common?

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Q. 14. What properties do all gases have in common?

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Q. 15. How is one solid different from another?

1. ....
2. ....
3. ....
4. ....
5. ....
6. ....
7. ....
8. ....
9. ....
10. ....
11. ....
12. ....

13. ....

14. ....

15. ....

16. ....

Q. 16. How is one liquid different from another?

(i) ....

(ii) ....

(iii) ....

(iv) ....

(v) ....

(vi) ....

(vii) ....

(viii) ....

Q. 17. How is one gas different from another?

(a) ....

(b) ....

(c) ....

(d) ....

(e) ....

(f) ....

Q. 18. Are there any properties shared by all objects and materials? If yes, name those properties.

1. ....

2. ....

3. ....

4. ....

Q. 19. What are the various objects and materials made of?

....

....

....

....

....

....

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....

Q. 20. Scientists have always been discovering and inventing new materials and new uses of known materials in their science laboratories. In what ways have many of these discoveries been important steps in the progress of mankind Illustrate your answer with examples from every-day life.

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Q. 21. How should we choose materials and objects for every- day use?

1. ....
2. ....
3. ....
4. ....
5. ....
6. ....
7. ....
8. ....

Q.22. (a) What are waste products?

....

....

....

....

....

(b) What is recycling? Give two examples.

....

....

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(c) How can we prevent pollution of the environment? Illustrate your answer with two examples.

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(d) What is diffusion? Give two examples.

....

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....

(e) Which of the following substances are elements, which are compounds and which are mixtures ?

Ice-cream, sugar, water, iron sulphide, air, oxygen, rust, copper, calcium chloride.

Elements..

....

Compounds...

....

Mixtures...

....

Q.23. Give two examples of objects and materials for each of the following categories:

1. Objects and materials which save your labour

(i) .... (ii) ....

2. Objects and materials which save your time

(i) .... (ii) ....

3. Objects and materials which help you learn more and faster

(i) .... (ii) ....

4. Objects and materials which help you keep good health

(i) .... (ii) ....

5. Objects and materials which protect you from bad weather

(i) .... (ii) ....

Q. 24. "We should never waste materials." Explain this statement by giving some practical examples.

....

....

....

....

....

....

....

....

Q 25. Give three examples of common material for each of the following categories:

(a) Plastic (b) Brittle (c) Ductile (d) Malleable

(a) 1. .... (b) 1. ....

2. .... 2. ....

3. .... 3. ....

(c) 1. .... (d) 1. ....

2. .... 2. ....

3. .... 3. ....

Q 26. Name the scientific term which denotes the following :

(a) The basic building blocks out of which all objects and materials in the universe are made ....

(b) Very small particles which make elements ....

(c) The materials in which atoms and molecules are simply packed together and there is no reaction occuring between them ....

....

....

....

(e) Which of the following substances are elements, which are compounds and which are mixtures ?

Ice-cream, sugar, water, iron sulphide, air, oxygen, rust, copper, calcium chloride.

Elements..

....

Compounds..

....

Mixtures..

....

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1. Objects and materials which save your labour

(i) .... (ii) ....

2. Objects and materials which save your time

(i) .... (ii) ....

3. Objects and materials which help you learn more and faster

(i) .... (ii) ....

4. Objects and materials which help you keep good health

(i) .... (ii) ....

5. Objects and materials which protect you from bad weather

(i) .... (ii) ....

Q. 24. "We should never waste materials." Explain this statement by giving some practical examples.

....

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....

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(a) Plastic (b) Brittle (c) Ductile (d) Malleable

(a) 1. ....

2. ....

3. ....

(b) 1. ....

2. ....

3. ....

(c) 1. ....

2. ....

3. ....

(d) 1. ....

2. ....

3. ....

Q 26. Name the scientific term which denotes the following :

(a) The basic building blocks out of which all objects and materials in the universe are made ....

(b) Very small particles which make elements ....

(c) The materials in which atoms and molecules are simply packed together and there is no reaction occuring between them ....

(d) The process by which waste products can be used again for other purposes ....

....

(e) Manure obtained from garbage ....

....

(f) Release of waste into water, air and ground ....

....

☐

CHAPTER 3

SEPARATION OF SUBSTANCES

Pure substances have definite physical properties :

We use different methods for separating substances; for example, (i) Sedimentation, (ii) Decantation, (iii) Loading, (iv) Filtration, (v) Sieving, (vi) By magnet. (vii) Evaporation and Crystallisation, (viii) Distillation, (ix) Sublimation, (x) Chromatography.

We can separate immiscible liquids by separating funnel. All methods of separation are based on just one principle. Different materials have different properties and we can use their difference in properties to separate them.

Q. 1. Fill in the blanks with suitable words:

(a) The process of changing water into water vapour is called..

(b) The process of separating liquids from a mixture is called ....

(c) The process of separating a mixture of heavy and light materials is called ....

(d) A mixture of camphor and salt can be separated by...

(e) A process of..is used by farmers for separating..from the.................................

Q. 2. Give reasons for the following:

(a) Why is alum used in settling the mud down in a can full of muddy water?

....

....

....

(b) Why does alcohol separate first from a mixture of water and alcohol by distillation?

....

....

....

(c) Why do you find water droplets on the outer surface of the glass full of cold water placed on a table?

....

....

....

(d) Why do the red and blue inks separate on the chalk?

....

....

....

(e) Impurities in substances are not always harmful. Why?

....

....

....

(f) Objects at a distance are seen clearly after a rain. Why?

....

....

....

Q. 3. Mention only the names of the processes used in separating the mixture of the following substances ;

(a) Wheat flour, pebbles and iron scraps

....

(b) Sugar and sulphur

....

(c) Rice grains, mud and sugar

....

(d) Alcohol and water

....

(e) Iron, sulphur and sand

....

Q. 4. Differentiate between the following :
(a) Evaporation and Condensation

....

....

....

....

(b) Decantation and Loading

....

....

....

(c) Centrifugation and Chromatography

....

....

....

(d) Sieving and Filtration

....

....

....

Q. 5. Give examples of the impurities which are:

(a) Useful to man ...., ..., ...

(b)Harmful to man ...., ..., ...

Q. 6. Distilled water is the purest form of water, but it is not good for health. Comment.

....

....

....

....

Q. 7. **Define the following by giving suitable examples :**

(a) Sublimation

....

....

....

....

(b) Crystallization

....

....

....

(c) Purification

....

....

....

Q. 8. How is it possible for us to separate a mixture of two or more than two substances?

....

....

....

Q. 9. How will you separate common salt from a mixture of common salt and chalk powder?

....

....

....

....

Q. 10. How will you separate the components of the mixture of water and mustard oil?

....

....

....

....

....

Q.11. Some statements are given below. Mark '√' if the statement is true and mark 'X' if it is false.

(a) Our body does not have an ability to separate gases from the air we breathe in.

(b) Plants can absorb all the material from the soil.

(c) Decantation can be used for separating two liquids such as oil and water.

(d) Two immiscible liquids are separated by using separating funnel.

Q. 12. A solid substance is dissolved in water. Which one of the following methods is used to separate it?

(a) Sublimation

(b) Evaporation

(c) Filtration

(d) Decantation

☐

CHAPTER 4

MEASUREMENT

Measurements are a necessity in our daily life. We need to measure many things (living and non-living) in our daily life.

It is often necessary for us to make measurements of length, mass, time and temperature. All measurements are comparison of a particular property of an object with the same property of a standard.

The standard measure we choose should not vary from (i) person to person, (ii) place to place, (iii) time to time, and (iv) country to country.

India has adopted SI system of units for all types of measurements. In the SI system, metre, kilogram and second are the basic units for length, mass and time respectively. We often use for convenience, multiples and submultiples of these basic units.

Length is any interval of distance. Area is length multiplied by breadth, and volume is area multiplied by length. Thus length is a basic quantity. Volume is expressed in the units of m^3, cm^3 or mm^3. Volume of liquids is expressed in the units of litre or milli-litre.

Mass of an object is the quantity of matter in it. Mass is expressed in the units of kg, g or mg. Mass is measured with the help of a beam balance.

Estimation is a rough "measurement" by our senses. It is useful and can often help us but we cannot always trust our guess work.

Temperature is the degree of hotness of an object.

Temperature is expressed in the unit of °C. Temperature is measured by using a thermometer.

Events which repeat regularly and at equal intervals of time are called periodic. Periodic events are used for measuring time interval.

In daily life we are often required to make several measurements before taking a decision. The standard used must be correct and it is our responsiblity to ensure that only the correct measures from Departments of Weights and Measures are used by the people around us.

Q.1. Complete the statements:

1. A doctor measures.......................................
2. A farmer measures.......................................
3. When you buy sweets you would want to see if the shopkeeper is giving you the correct...................................
4. A milkman measures..................................
5. A tailor measures....................................
6. A metre rod is divided into...................................divisions.
7. Each centimetre is divided into..............................small divisions called ....
8. A ruler measures length in..............................and.........................
9. A measuring tape measures length in.......................... and............ ....
10. Very long distances are measured in...

Q.2. Give the standard unit for : (i) Length...

(ii) Mass.................................. (iii) Time.....................................

Q.3. (a) What do we mean by a standard unit?

....

....

....

(b) What would happen if every one uses a unit according to one's convenience ?

OR

Handspan and cubit cannot be used as standard units of length .Why?

....

....

....

....

(c) What are the requirements of a standard unit ?

(i) ....
(ii) ....
(iii) ....
(iv) ....
(v) ....

Q.4. In each of the following items, encircle the number preceding the word or phrase that best completes the statement or answers the question.

1. Gold is measured in

(a) kilograms (b) milligrams (c) quintals.

2. Areas of big fields are expressed in

(a) m^2 (b) $kilometre^2$ (c) cm^2 (d) mm^2

3. One decade is approximately

(a) 3750 days (b) 3650 days (c) 3660 days

4. The temperature of a normal human body is

(a) 35^0C (b) 37^0C (c) 20^0C

5. One litre is

(a) $1000\ m^3$ (b) $100\ cm^3$ (c) $100\ m^3$

(d) 1000 ml

6. One hectare is

(a) 1 hectare= 100 are=1000 m^2 (b) 1 hectare =100 are=10000m^2

(c) 1 hectare=1000 are=1000 m^2

Q.5. State the precautions which should be taken while using a metre scale to measure length.

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Q.6. (a) What are basic units ? Name these units.

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....

....

(i) .... (ii) .... (iii) ....

(b) Are area and volume basic units ? Explain.

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Q.7. Complete the following:

(i) 1 kilometre=..................................m=........................cm

(ii) 1 metre=..mm

(iii) 1 decametre=.......................................mm

(iv) 1 metric ton=........................quintal= ....kilogram

(v) 1000 milligram= ....g= ....kilogram

(vi) 100 decades=..........................centuries=......................years

(vii) 1 $kilometre^2$=..$metre^2$

(viii) 1 metre^3=..cm^3

(ix) 1 metre^2=..decimetre^2

Q.8. A brick is 20 cm long, 10 cm broad and 8 cm thick.

(a) Express its total surface area in metre^2.

....

....

....

(b) Express its volume in cm^3 and m^3.

....

....

....

....

Q.9. Which are the scales you use for measurement of lengths of:

(a) playground ....

(b) long distances ....

(c) A book ....

(d) a piece of cloth ....

(e) a small square of a graph paper ....

(f) the chest of a student ....

Q.10. (a) Why do we have to estimate correctly in our daily life ? Give an example.

....

....

....

....

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....

(b) How can you improve your estimation skill ?

....

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Q.11. List the various steps that you would use to find the thickness of a sheet of paper of your note book.

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Q.12. (a) What are periodic events ?

....

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(b) What kind of watch is used to measure the time of 100 m race ?

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....

Q.13. (a) What is volume ?

....

....

(b) Define capacity of a katori ?

....

....

(c) A small water-tight cubical box has sides 5mm each. Fifty drops of water from a dropper can fill the box completely. What is the volume of one drop of water in mm^3, cm^3 and m^3 ?

....

....

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....

Q.14. Read the following sentences and write True for the correct ones and False for the wrong ones :

1. Liquids like water, milk and medicines are measured by volume. (True/False)
2. We need standard units for reliable measurment. (True/False)
3. A shopkeeper is not obliged to keep proper standards and to get them checked regularly. (True/False)
4. A tailor makes measurements very accurately. (True/False)
5. Estimation is not a skill. (True/False)
6. A millilitre is a submultiple of a metre. (True/False)
7. There are no submultiple units of the basic unit of time. (True/False)
8. Temperature is the measure of degree of hotness of a body. (True/False)
9. A common scale always creates confusion. (True/False)
10. Observation plays an important part in making measurements. (True/False)
11. The standard unit of time is hour. (True/False)
12. There are units bigger or smaller than the basic units of length, mass and time. (True False)
13. The mass of an object is measured by a beam balance. (True/False)

Q.15. For a measurement to be correct, the standard used must be correct. From where can we obtain correct standard measures ?

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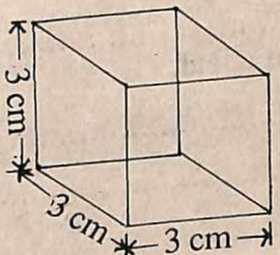
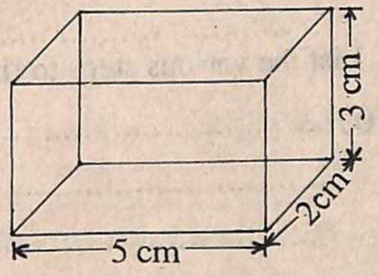
Q.16. (i) Along with the figures drawn below, their dimensions are given. Find out the volume of each solid.



(a)



(b)

Volume of (a).....................cm × ....cm × ....cm

=..........................cm^3

Volume of (b)....................cm × ....cm × ....cm

=..........................cm^3

(ii) Write each of the above results in metre^3

(a) ....m^3

(b) ....m^3

Q.17. State the precautions to be followed while finding out the volume of liquid using a graduated cylinder.

(i) ....

....

....

(ii) ....

....

....

(iii) ....

....

....

....

Q.18. List the various steps to find the surface area of a leaf.

(i) ....

....

....

(ii) ....

....

....

(iii) ....

....

....

(iv) ....

....

....

(v) ....

....

....

(vi) ....

....

....

Q.19. (a) Define mass of a substance. What is the standard unit of mass ?

....

....

....

(b) How will you ensure that a beam balance is correct ?

....

....

....

....

Q.20. Fill in the blanks:

(i) The volume of an object is the.................................occupied by it.

(ii) The volume of liquids is expressed in...

(iii) 1cm^3 is equal to..ml.

(iv) The lower fixed temperature in celsius thermometer is the melting point of ....

(v) The thermometer used to measure human body temperature is called.......................................thermometer.

(vi) To read the volume of a liquid in a measuring cylinder it should be kept on a...............................surface.

(vii) 1 metricton is equal to................................kg.

(viii) When we go to market to buy things which are sold by the mass, we must ensure that the beam balance and weights used are...............................

Q.21. The length of a rectangular sports field is 90 m and its breadth is 50 m. Calculate its area in 'are' and 'hectare'.

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Q.22. A landlord wanted 500 tiles of the size 5cm × 5cm to cover the floor. In the market he found that tiles of only 4cm ×4cm were available. How many tiles will he have to buy ?

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……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

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Q.23. If the area of a rectangular book is 1000 cm^2 and its breadth is 20 cm, calculate its length.

……………………………………………………………………………………………

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Q.24. Match the physical quantities given in column I with their units given in column II.

Column I

Mass
Temperature
Length
Time
Volume
Area

Column II

metre^3
metre^2
metre
degree celsius
second
kilogram

Q.25. Match the physical quantities in column I with their meanings in column II.

Column I	*Column II*
Temperature	distance between two points
Mass	space occupied
Volume	degree of hotness
Area	quantity of matter
Length	measure of the surface of an object
Capacity of a container	space available in the container

Q.26. Draw a diagram of the laboratory thermometer. Mark the lower and upper fixed temperatures on a celsius scale.

Q.27. Mention two conditions which are required for the mass of an object to be measured correctly ?

(i) ....

....

(ii) ....

....

☐

CHAPTER 5

CHANGES AROUND US

There are different types of changes:

(i) Physical (ii) Chemical (iii) Slow and fast (iv) Desirable and Undesirable (v) Periodic and Non-Periodic (vi) Reversible and Irreversible.

There are indications and conditions of a chemical reaction.

A change may affect a few or many properties. We can control some changes, for example we can prevent or slow down the spoilage of food. There are many changes on which we have no control; for example, rotation of the earth.

We should think before we change something.

Q.1. Make a list of different types of changes you have studied. Give *two* examples in each case.

I. ....

II. ....

III. ....

IV. ....

V. ....

....

Q.2. Complete the following table:

S.No.	*Physical Change*	*Chemical Change*
1.	Elements and Compounds of the substance do not undergo a change.	1.
2.		2. New substance is formed.
3.	The change is easily reversible.	3.
4.		4. Properties of the new substances are different from the properties of the original substances.
Example:		Example:

Q.3 Some statements are given below. Mark √ if the statement is true and mark 'X' if it is false.

(a) Rusting of iron is a chemical change....................................

(b) Breaking of glass is a chemical change.................................

(c) Burning of coal is a physical change......................................

(d) Evaporation of water is a physical change..............................

(e) Stretching of rubber is a physical change ....

Q.4. Fill in the blanks with suitable words:

(a) During mid-day the shadows are..and during evening the shadows are...

(b) When wood burns, it changes into..., ..., and...

(c) The appearance of some comets or of a shooting star is a......................

(d) Dead plants change when they become manure in a..............................

(e) Coming together of two or more than two materials in all changes is called ....

Q.5. Give two examples of the following:

(a) Flowers which bloom during the day:......................., ...

(b) Flowers which bloom during the night:....................., ...

(c) Plants whose leaves fold:..., ...

(d) The animals which are active during the night:..........., ...

(e) Leaves which change colour:.................................. , ...

Q.6. Changes affect a few or many properties. Give examples.

(a) Where only few properties are affected :

....

(b) Where many properties are affected:

....

Q.7. Give two examples each of :

(a) Reversible and Irreversible changes:......................., ...

(b) Periodic and Non–periodic changes:......................., ...

(c) Desirable and Undesirable changes:......................., ...

(d) Slow and Fast changes : ...., ...

(e) Physical and Chemical changes :........................, ...

Q.8. State two changes which may be desirable as well as undesirable. Also give reasons.

....

....

....

Q.9. (a) Give two examples of changes in which energy is given out.

....

....

(b) Give two examples of changes in which energy is absorbed.

....

....

Q.10. List out the different changes occuring during the following processes:

1. Wheat flour when changed to chappatis.

....

2. Making models with mud.

....

3. Baking a cake in an oven.

....

4. Changing of milk into curd.

....

5. Rusting of iron.

....

6. Melting of wax.

....

7. Burning of candle.

....

8. Change of season.

....

9. Formation of cloud.

....

10. Ripening of fruits.

....

11. Beating of heart.

....

12. Making of ice–cream.

....

13. Growth of a tree.

....

14. Changing of the visible shape of the Moon.

....

15. Occurence of day and night.

....

☐

CHAPTER 6

MOTION, FORCE AND MACHINES

We observe motion all around us. Motion is characterised by change of position. All motion is relative and there is nothing like absolute motion. The motion of objects may be of different types—translational, rotational, oscillatory, repetitive, vibrational or a combination of *four* or more of these types.

Any phenomenon that repeats itself regularly after a certain interval of time can be used for the measurement of time interval. Motion and time are always related. Such motions which repeat after regular intervals of time are called periodic motion.

$$\text{Speed} = \frac{\text{Total distance travelled}}{\text{Time taken}}$$

The standard unit of speed is metre/second or m/s or ms^{-1}

Force is that pull or push which produces or tends to produce, destroys or tends to destroy motion in a body. A force is absolutely *necessary* to bring about a change in the motion of an object. The change can be of *four* types:

(i) The speed $\left(\frac{\text{distance}}{\text{time}}\right)$ of the object may change

(ii) The direction of the movement may be changed.

(iii) Both the speed or the direction may be changed

(iv) The shape of an object may be changed.

Force is measured in *Newtons*.

There are *two* types of forces :

(i) Contact Forces—Muscular force and Frictional force.

(ii) Action at a distance—Gravitational force, Magnetic force, Electrostatic force.

Whenever one body moves over the surface of another body an opposing force called friction is called into play. Friction can be reduced by making the surfaces smooth *i.e.*, by using lubricants etc., or by using rollers and it can be increased by making the surfaces rough. Friction produces heat. Rolling friction is the least of all the types of friction.

Pull of the earth on the body is called its *weight*. Weight is, therefore, a force. Force may change the shape of an object. This property can be used to measure force, as in a spring balance. Force has magnitude as well as direction.

A *machine* is a device that helps to do work more easily and more conveniently than could be done by hands. There are a variety of machines which are used at home, in school, in playground and in many other activities of life.

With the use of machines our work becomes easier and faster. *Load* is a thing which is carried or lifted by a machine. The force with which the load is carried or lifted by using a machine is called the *effort*. In situations where greater force is required,you can do more work with the help of machines by applying less force. Machines can change the direction of force. Work done by the machine is equal to the work done on the machine. This is called the principle of work as applied to a machine. This principle holds good in case of a perfect or ideal machine only.

Complicated machines e.g. a bicycle, a sewing machine, a tractor etc. are generally made up of the following simple machines:
(i) Lever (ii) Pulley (iii) Wheels or Gears (iv) Inclined plane (v) Screw

We must take proper care of machines by lubricating or oiling the various parts etc. so as to reduce friction.

Q.1. Complete the following statements:

1. We observe..all around us.
2. ....causes a change in the motion of objects.
3. The weight of an object on a planet is entirely due to.......................... ....of the planet.
4. We can increase..............................by..the roughness of the two surfaces which are in contact.
5. A force has both................................and...................................
6. An object travelling through space would travel in a ....unless some..................................acted upon it.
7. It is the....................................shape of the aeroplanes that enables them to fly so easily in air.
8. A rotating fan has...motion.
9. All.................................motions are repetitive but all repetitive motions are not ....

Q.2. (a) Make a list of five objects which have slow movements :

(i) ....

(ii) ....

(iii) ....

(iv) ....

(v) ....

(b) Make a list of *five* objects which have *fast* movements :

(i) ....

(ii) ....

(iii) ....

(iv) ....

(v) ....

Q.3. Give *two* examples of objects for each of the following categories:

1. Objects which move in a line :

(i) .... (ii) ....

2. Objects which move in a circle :

(i) .... (ii) ....

3. Objects which move to and fro :

(i) .... (ii) ....

4. Objects which move repetitively :

(i) .... (ii) ....

5. Objects which have haphazard or random movements :

(i) .... (ii) ....

6. Objects which have periodic movements :

(i) .... (ii) ....

Q.4. What are the different kinds of motion that an object can have at different times ? Give *two* examples for each type of motion.

1. ....

Examples:

(i) .... (ii) ....

2. ....

Examples:

(i) .... (ii) ....

3. ....

Examples:

(i) .... (ii) ....

Q.5. Can an object have more than one kind of motion at the same time ? Give two examples to illustrate your answer.

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....

....

Q.6. (a) Define 'Force'. Mention its unit.

....

....

Unit..

(b) What is the effect of force on a body ?

(i) ....

(ii) ....

(iii) ....

(iv) ....

Q.7. (a) Give an example of force which produces motion in a body.

....

(b) Give an example of force which tends to produce motion in a body.

....

(c) Give an example of force which destroys motion in a body.

....

(d) Give an example of force which tends to destroy motion in a body.

....

Q.8. What are the various ways of applying a force ? Give an example in each case.

(i)..

Example..

(ii)..

Example..

(iii)...

Example..

(iv)...

Example..

(v)..

Example..

(vi)...

Example..

....

Q.9. Name *five* types of forces which one comes across in every-day life.

(i) ....

(ii) ....

(iii) ....

(iv) ....

(v) ....

....

Q.10. In each of the following items encircle the number preceding the word or phrase that best completes the statement :

1. Force of friction always (a) helps the motion of objects (b) opposes the motion of object (c) acts at right angles to the motion of objects.
2. Lubrication is a good way to (a) increase friction (b) reduce friction (c) eliminate friction totally.
3. Weight is a (a) mass (b) force (c) pressure.
4. The motion of a simple pendulum is (a) rotational (b) translational (c) vibrational.

Q.11. Match the statements in column A with those in column B.

Column A	Column B
1. Friction	1. has both magnitude as well as direction.
2. Any two objects attract each other with	2. can be changed by applying force
3. A magnet	3. is used to measure time
4. Speed	4. gravitational force.
5. Force	5. causes wear and tear.
6. The motion of a pendulum	6. exerts a magnetic force.

Q.12. (a) Define Friction .

....

....

(b) Upon what factor does friction depend ?

....

....

(c) Pranav, Ashish and Satish run at the same speed on three different types of surfaces (*i*) a smooth cement surface (*ii*) a smooth gravel surface and (*iii*) a rough dirty surface respectively and stop running at the same time. Who, do you think, will cover the maximum distance before stopping ? Who will cover the shortest distance and why?

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....

Q.13. How do we increase friction in our day-to-day life ? Give two examples.

....

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....

....

Q.14. How do we decrease friction ? Give two examples.

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Q.15. Why is friction a necessity in life ? Give two examples to support your answer.

....

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Q.16. Why is friction an evil in life ? Give two examples to support your answer.

....

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Q.17. Why do we use wheels in automobiles ?

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....

Q.18. (a) Does friction produce heat ?

....

(b) Are shooting stars really stars ? Why do they appear bright ?

....

....

....

(c) Give two examples of the fact that friction produces heat.

1. ....

....

....

2. ....

....

....

Q.19. (a) What is streamlining ?

....

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....

(b) Why are boats streamlined ?

....

....

....

Q.20. Why is it necessary to

(a) give the size or the magnitude of a force, and (b) specify its direction ? Give an example to illustrate your answer.

(a) ....

....

....

....

(b) ....

....

....

....

Q.21. Give *one* example for each of the following cases :

1. Force causes a change in speed ....
2. Force causes a change in direction ....
3. Force causes a change both in the speed and in the direction ....
4. Force changes the shape of an object ....

Q.22. An autorickshaw covers a distance of 30 km in 1 hour. What is its speed in (i) km/hr (ii) m/s

(i) ....

....

....

....

(ii) ....

....

....

Q.23. An athlete runs 100m in 10 seconds. What is the speed of the athlete ?

....

....

....

Q.24. Which of the following is *not* an example of force of gravity :

(i) A leaf falling from a neem tree.
(ii) A stone falling from the roof of a building.
(iii) A buffalo pulling a cart on a levelled road.
(iv) A swimmer diving into a swimming pool.

....

....

Q.25. Which of the following is *not* an example of muscular force.

(i) A porter carrying a load on a wheel barrow on a railway station.
(ii) A fruit falling from a tree.
(iii) A woman drawing water from a well in a village.
(iv) A child riding a bicycle.

....

....

Q.26. Classify the following as linear,circular and oscillatory motion.

(i) The motion of a swing.
(ii) The motion of the moon around the earth.
(iii) The motion of the tip of the seconds hand of clock.
(iv) The motion of a plucked string of a *sitar*.
(v) The motion of a falling stone.
(vi) The motion of a cyclist on a straight levelled road.

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Q.27. (a) What is a machine ?

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....

....

(b) Name the various kinds of simple machines.

(i) ....

(ii) ....

(iii) ....

(iv) ....

(v). ....

Q.28. (a) Do the machines work on their own ?

....

....

(b) What is the principle of a simple machine ?

....

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....

Q.29. The efficiency of a machine is always less than 100% *i.e.* the work done on the machine is always more than the work done by the machine. Explain why it is so.

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Q.30. If the work done by a machine is always less than the work done on it, then, why do we use machines ?

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Q.31 What are the main advantages of machines ? Give an example in each case.

The main advantages of machines are:

(a) ....

....

....

Example: ....

(b) ....

....

....

Example: ....

(c) ....

....

....

Example: ....

(d) ....

....

....

Example: ....

Q.32. Complete the following statements :

(i) If a very heavy stone is to be removed from the playground of a school, we often use a........................called..................................

(ii) We find it much easier to push a platform with a heavy load on it provided the platform is on..

(iii) If there were no.........................,the work would have been totally beyond our ability to do.

(iv) Fulcrum is defined as ....

(v) ....is the force applied on a machine.

(vi) ....is the weight lifted by a machine.

(vii) In a beam balance,we only compare the..of two objects.

(viii) It is easier to place a full drum of tarcoal on a truck by using.................... ....as an..

(ix) A pulley merely enables us to..of the applied force.

(x) Winding mountain roads are actually applications of a simple machine called the..

(xi) The steeper a slope is, the ....is the force required to pull a heavy object up the slope.

Q.33. In each of the following items, encircle the number preceding the word or phrase that best completes the statement:

1. In order to open or shut a door, the least force is required when it is applied *(a)* nearer the hinge *(b)* farther from the hinge *(c)* on the hinge *(d)* at the middle of the door.
2. A beam balance is a *(a)* first type of lever *(b)* second type of lever *(c)* third type of lever *(d)* fourth type of lever.
3. When we draw water from a well using a pulley, we apply force in the *(a)* upward *(b)* downward *(c)* perpendicular direction by pulling the rope downward.
4. Screw is a modified form of *(a)* a lever *(b)* an inclined plane *(c)* a pulley.
5. A hand-operated crane is a combination of *(a)* a screw and a lever *(b)* a pulley, a wheel and a lever *(c)* a screw, pulley and an inclined plane.

Q.34. Match the statements in column A with those in column B:

Column A	Column B
1. Wheel	1. is a modified form of an inclined plane.
2. Pulley	2. is a rigid bar which can rotate about the fulcrum.
3. Lever	3. helps to lift an object by applying a force less than the weight of the object.
4. Inclined Plane	4. is a small wheel fixed on an axle about which it can rotate.
5. Screw	5. helps us to move objects with very little effort.

Q.35. Why is the oiling of some parts of a machine necessary ?

....

....

....

Q.36. (i) Name two machines which make use of animals to do work for us.

(a) ....

(b) ....

(ii) Name two machines which depend on the force of the wind to do work.

(a) ....

(b) ....

(iii) Name two machines which make use of water to do work for us.

(a) ....

(b) ....

Q.37. (a) What is a lever ?

....

....

(b) Why is a lever a machine ?

....

....

(c) What are the various types of levers ? Draw a diagram in each case and make the positions of *load, effort* and *fulcrum* on it.

(i) ....

....

....

....

....

(ii) ....

....

....

....

....

(iii) ....

....

....

....

....

Q.38. Join the pairs of phrases correctly and write them in the spaces below to complete the sentences.

the effort must be applied
the fulcrum must be placed
the load must be placed
to use the lever to its best advantage.

as near to the load as possible
at the end of the shorter term
at the end of the longer term.

the effort..

the fulcrum...

the load...

....

Q.39 (i) Name *three* machines which make use of the lever of the first type.

(a) ....

(b) ....

(c) ....

(ii) Name *three* machines which make use of the second type of lever.

(a) ....

(b) ....

(c) ....

(iii) Name *three* machines which make use of the third type of lever (or double levers).

(a) ....

(b) ....

(c) ....

(iv) Name some of the parts of the human body which operate on the principle of lever.

(a) ....

(b) ....

(c) ....

(v) In the space below, draw two machines which make use of the principle of the lever.

Q.40. (a) Why is it easier to push a barrel on the inclined wooden plank ?

....

....

....

(b) Why is road going up a hill built winding rather than straight ?

....

....

....

....

Q.41 (a) How is a screw able to help us to do work ?

....

....

....

(b) How can you show that a screw is an inclined plane ?

....

....

....

....

(c) Name three machines which help us to do work by making use of screws.

(i) ....

(ii) ....

(iii) ....

Q.42 (a) Why do workmen sometimes use large pipes as rollers to move a heavy crate across the ground ?

....

....

....

....

(b) Why is it troublesome to use rollers to move things ?

....

....

....

(c) Why are wheels more useful than rollers ?

....

....

....

....

(d) Name five common machines which run on wheels.

(i) ....

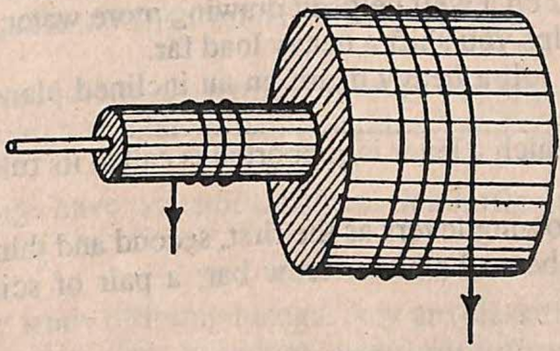
(ii) ....

(iii) ....

(iv) ....

(v) ....

(e) The drawing shows a wheel and axle. Write "load" where you would tie the load, and "effort" where you would apply the effort.



Q.43. (a) What does a simple pulley do to the direction of application of effort?

....

....

(b) How does a pulley help in making our task of drawing water from a well simpler ?

....

....

....

....

Q.44. How can we prolong the life of machines?

OR

What should we do to take proper care of the machines ?

(i) ....

....

....

(ii) ....

....

....

Q.45. In the following statements write 'T' against those statements which are true and 'F' against those which are false :

(i) A tractor is an example of a simple machine.
(ii) A pulley fixed on a well helps in drawing more water with less effort.
(iii) A crowbar helps you shift a heavy load far.
(iv) It is easier to roll a heavy drum on an inclined plane than carrying it up directly.
(v) The point at which a lever is supported is called its fulcrum.

Q.46. Classify the following levers as the first, second and third type : Wheel barrow, beam balance; crow bar; a pair of scissors, tweezers and lemon squeezer.

....

Q.47. Complete the following statements:

(i) In the lever of the first type...is in the middle.
(ii) The pulley changes the...of force.
(iii) The point of support in a lever is called its..
(iv) The outer parts of machines are painted to protect them from..................

....

Q.48. Which of the following is *not* a function of machines :

(i) To make our work convenient.
(ii) To enable us lift more load with less force.
(iii) To enable us make the measurements correctly.
(iv) To do our work faster.

....

....

□

CHAPTER 7

THE LIVING WORLD

You see living things all around you. Plants, animals and micro-organisms form the living world .

All living beings have some common characteristics, like movement, sensitivity, feeding, respiration, excretion, reproduction, growth, body (made up of cells) and definite life span.

Inspite of common characteristics, there is a lot of variation seen in size, shape, food, ways of protection and habits of living beings.

There are many kinds of natural homes—habitats of different living organisms. Living beings similar in habits,habitat and can mate to produce the young ones or *species*.

All living beings have scientific names. Scientific names are the same the world over.

For convenient study of living beings, they are classified in different groups. Plants are grouped under plant kingdom, whereas animals are grouped under animal kingdom;virus forms a link between the living and the non living world.

Q.1. Define the following:

(i) Herbivore..

....

(ii) Habitat..

....

(iii) Terrestrial..

....

(iv) Amphibian..

....

(v) Parasite...

....

(vi) Species...

....

Q.2. Fill in the blanks:

(i) ....in living beings is a permanent feature and.................. increase in size.

(ii) Plants and animals made up of single cells are called ....

(iii) A bacterium has a life span of...

(iv) Green plants prepare their food with the help of.......................... in presence of..

(v) ....organisms live in water.

(vi) Organisms on which parasites live are called ....

(vii) Living beings have been given standard names called....................

(viii) Plants which complete their life in two seasons are.........................

(ix) Banana is a...

(x) Back-bone is called a..

(xi) ....forms a link between living and non-living world.

(xii) Micro-organisms can only be seen under a.....................................

(xiii) Body of birds is protected by...

(xiv) Scientific names are written in..

(xv) ....have...........................scales whereas fish has ....scales.

Q.3. Give examples of

(i) Unicellular animals (a)................................(b)..............................

(ii) Unicellular plant which can move..

(iii) Animals having a life span of 17 to 18 years..............................

....

(iv) A tree that lives for hundreds of years ....

(v) Biggest animal living on the earth ....

(vi) The largest land animal..

(vii) An insectivorous plant..

(viii) An insectivorous animal..

(ix) An animal whose body is covered with thorns for protection

....

(x) Animals active near the lighted bulbs..

(xi) An acquatic plant...

(xii) A marsupial...

(xiii) A plant reproducing with the help of a leaf ....

(xiv) An annual plant..

(xv) An animal whose body is slippery to touch....................................

Q.4. List the various characteristics of living organisms.

....

....

....

....

....

....

....

....

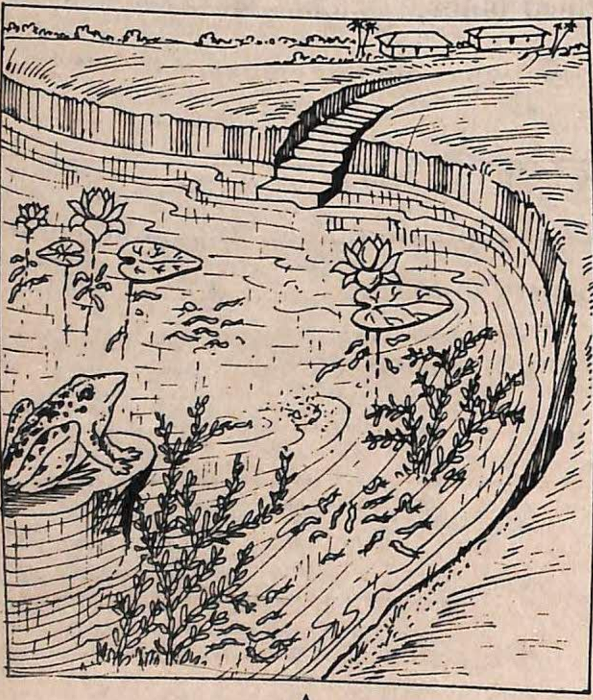
....

....	....
....	....

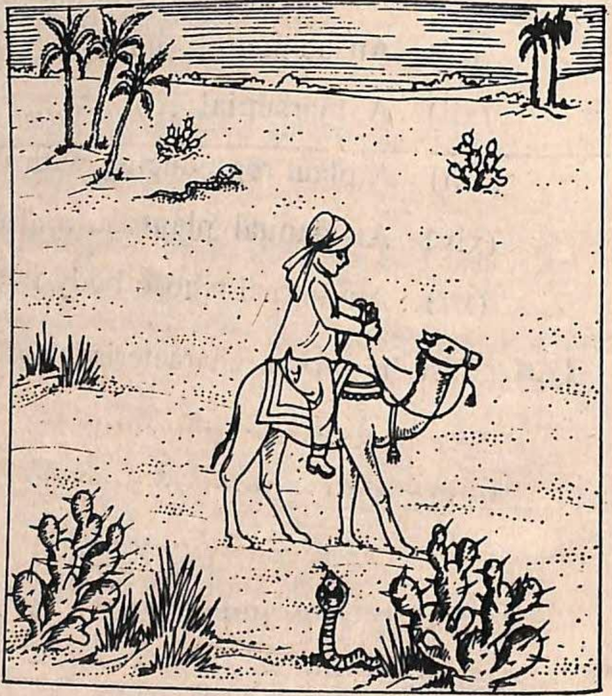
Q.5. How would you differentiate a plant from an animal ?

Plant	Animal
....	....
....	....
....	....
....	....

Q.6. Label the pictures, and answer the following questions.



A



B

(i) What kind of animals do you see in

Picture A..

Picture B..

(ii) What kind of plants do you see in

Picture A..

Picture B..

(iii) What kind of habitat do you see in

Picture A..

Picture B..

Q.7. Why does a biologist give scientific names to living organisms?

....

....

....

....

Q.8. An iceberg grows and moves, but is not a living organism. Why ?

....

....

....

....

Q.9. Motor car, moves, uses petrol, but still is not living organism. Why ?

....

....

....

....

Q.10. Match the common names given in column A with scientific names given in column B.

	A	B
(i)	Human beings	Triticum vulgare
(ii)	Pea	Mangifera indica
(iii)	Wheat	Pisum sativum
(iv)	Mango	Homo sapiens

Q.11. List the ways by which plants reproduce.

1. ....

2. ....

3. ....

Q.12. List the ways by which animals reproduce.

....

....

....

....

Q.13 Make a list of invertebrates that you have seen.

1.	6. ....
2.	7. ....
3.	8. ....
4.	9. ....
5.	10. ....

Q.14. Make a list of non-flowering plants that you have seen around you.

....

....

....

Q.15. Give examples of

Herbs	Shrubs	Trees

Q.16. Fill up the table :

National Flower	National Animal	National Bird

Draw the pictures of above items below :

☐

CHAPTER 8

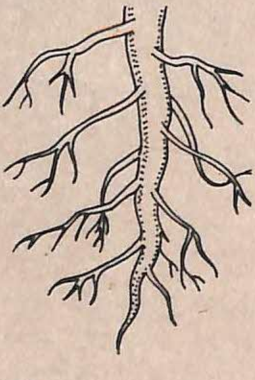
STRUCTURE AND FUNCTIONS OF THE LIVING BODY

All living organisms have specific structure to perform specific functions. Plants may be unicellular or multicellular. Plants may be herbs, shrubs and trees. Different parts of the plants are root, stem, leaf, flower, fruit and seeds. These parts have definite functions to perform. Different parts of plants modify to perform some functions other than those they are expected to perform.

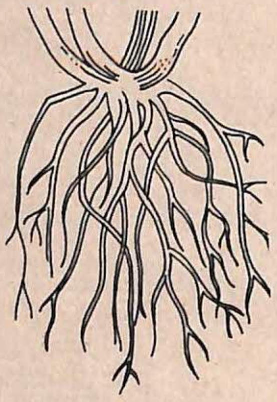
All animals have specific parts and organs to perform various functions. Animals, like plants, show tremendous variations.

Like all animals, human being also have different organs. The organs form different systems—digestive system, respiratory system, circulatory system, excretory system (urinary system), skeletal system, muscular system and reproductive system.

Q.1. What do the following pictures show ?



1......................



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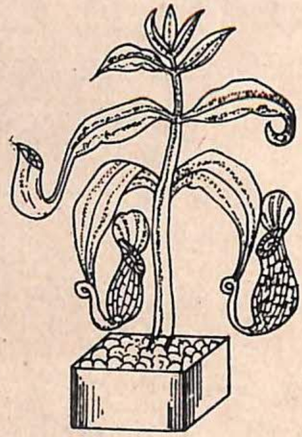

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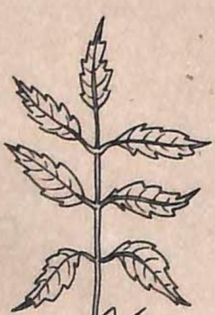

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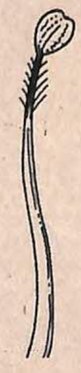

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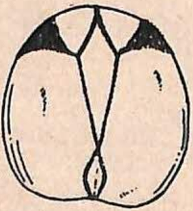


6......................

Q.2. What are the functions of :

(i) Leaf ....

....

(ii) Incisors ....

....

(iii) Roots ....

....

(iv) Heart ....

....

(v) Tongue ....

....

(vi) Lungs ....

....

(vii) Bones ....

....

(viii) Kidneys ....

....

(ix) Nervous System ....

....

(x) Stem ....

....

Q.3. What are the following called :

(i) The first root, which becomes the main root . ...

(ii) The chewing teeth. ....

(iii) Fine hair helping in absorbing water and minerals from the soil. ....

(iv) The place from where the leaf comes out in stem . ...

(v) The first whorl of flower. ....

(vi) Seeds with one colytedons. ....

(vii) Part in your body where food is churned. ....

(viii) The tube connecting the nose passage with the lungs. ....

(ix) The blood vessel carrying blood from the heart to the lungs. ....

(x) Organs which help you know about your surroundings. ....

Q.4. Answer the following questions :

(i) What will happen to a plant, if all its leaves are removed ?

....

....

....

(ii) How do stomata help the plant ?

....

....

....

(iii) What is a fruit ?

....

....

....

(iv) How do petals of a flower help the plant ?

....

....

....

(v) Why do some parts of the plant modify ? Explain with examples .

....

....

....

(vi) Why should you take good care of your teeth ?

....

....

……………………………………………………………………………

……………………………………………………………………………

(vii) What is respiration ?

……………………………………………………………………………

……………………………………………………………………………

……………………………………………………………………………

……………………………………………………………………………

(viii) What happens to food in the small intestines ?

……………………………………………………………………………

……………………………………………………………………………

……………………………………………………………………………

……………………………………………………………………………

(ix) Name the different sense organs present in our body, and write how they help us.

……………………………………………………………………………

……………………………………………………………………………

……………………………………………………………………………

……………………………………………………………………………

……………………………………………………………………………

(x) How do muscles help us ?

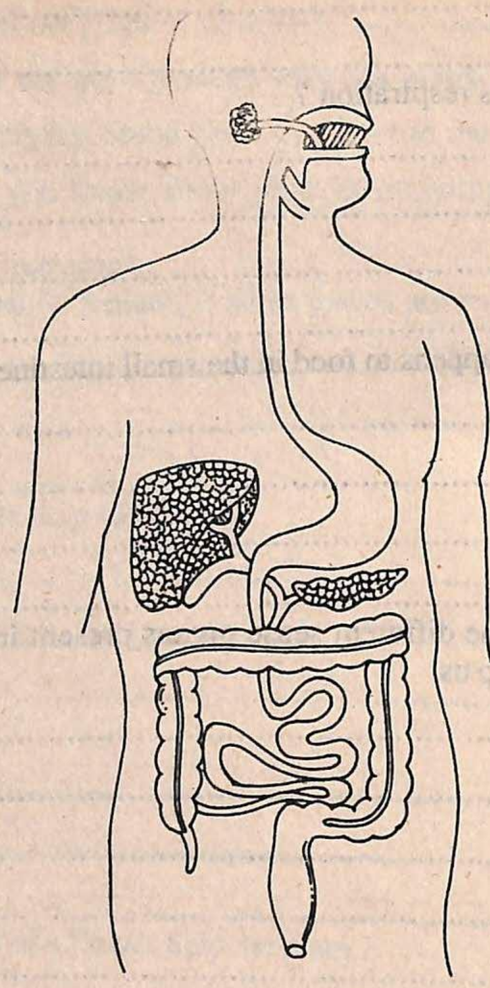
……………………………………………………………………………

……………………………………………………………………………

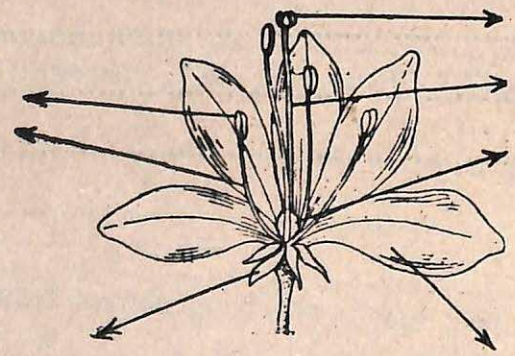
……………………………………………………………………………

……………………………………………………………………………

Q.5. Label the diagram.



Q.6. Label the different parts of a flower and give the functions of each part.



....

....

....

....

....

Q.7. What happens to :

(i) Leaves in cactus plant

....

....

....

(ii) Leaf in pitcher plant

....

....

....

(iii) Food in large intestine

....

....

....

(iv) Air in lungs

....

....

....

(v) Stem in potato

....

....

....

(vi) Roots in radish

....

....

....

Q.8. Give an example of each of the modifications seen in :

(i) Roots for storage of food. ....

(ii) Stem for climbing. ....

(iii) Stem for storage of food. ....

(iv) Roots for support. ....

(v) Stem for preparing food and storing water..

....

Q.9. Write the edible parts in the following :

(i) Sugar cane..

(ii) Mango..

(iii) Potato..

(iv) Wheat..

(v) Ladyfinger..

(vi) Radish..

(vii) Maize..

viii) Spinach..

(ix) Banana..

(x) Onion..

(xi) Cauliflower..

(xii) Cabbage..

....

Q.10. Draw the following items and label each of them :

(i) A simple leaf

(ii) A dicot seed

Q.11. (i) What is heart beat ?

....

....

(ii) What is pulse rate ?

....

....

(iii) Find out

	of yourself	of your mother	of your father
(a) Heart beat	....	....	....
(b) Pulse rate	....	....	....

Q.12. What is reproduction ?

....

....

....

....

Q.13 How would you show that there is a baby plant lying protected in the seed ?

....

....

....

Q.14 What keeps your mouth moist all the time?

....

....

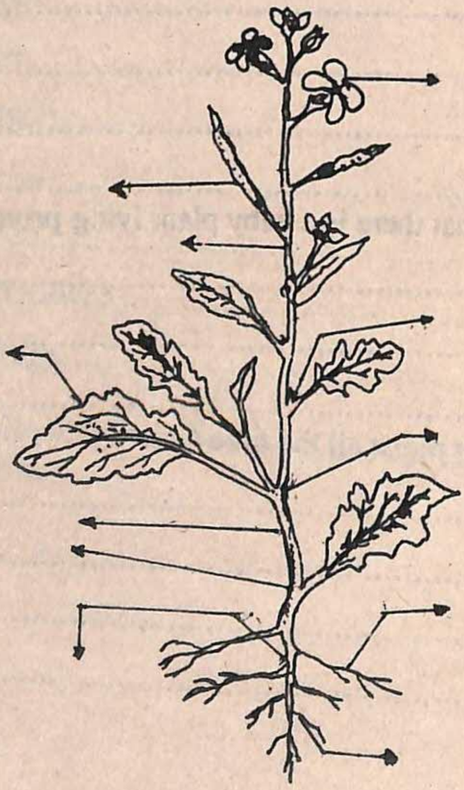
....

....

Q.15. Fill up the table :

	Name of the system in humans	Functions
1.	....	....
2.	....	....
3.	....	....
4.	....	....
5.	....	....
6.	....	....
7.	....	....

Q.16 Label the different parts of the plant.



CHAPTER 9

AIR

Air is all round us. Although air is invisible there are many ways is which it can be detected. The atmosphere is the air which surrounds the earth. It occupies space and has a weight. It is a mixture of many gases. Next to Nitrogen,Oxygen is the most abundant of all the elements. In nature Oxygen is produced by green plants. It is a colourless, odourless, tasteless and slightly soluble in water. It is a supporter of combustion also. The oxides of non metals are acidic and of metals are basic. The oxygen present in air and little moisture causes to produce rust (iron oxide). Fish and other aquatic animals and plants breathe oxygen which is in dissolved state in water :

Air is useful to man in many ways but it can be polluted by smoke, ash and sulphur dioxide.

Q.1. Answer the following questions :

(a) How will you show that an empty glass is filled with air ?

....

....

(b) Why do we need extra supply of oxygen at high altitudes ?

....

....

(c) What is photosynthesis ?

....

....

(d) What makes air impure ?

....

....

(e) How will you show that air is needed for burning ?

....

....

(f) What is a catalyst ? Give an example.

....

....

....

Q.2. Write a sentence about each of the following :

(a) Ionosphere..

....

(b) Weather..

....

(c) Climate...

....

(d) Meteorology...

....

(e) Troposphere..

....

Q.3. Fill in the blanks :

(a) Air is a..of many gases.

(b) Air occupies..................................and has..............................

(c) Nearly four–fifth of the air is..

(d) Nearly one–fifth of the air is...

(e) The major components of the air are................and ....

(f) ....supports combustion.

(g) ....is needed by green plants to make their food.

(h) The cover of air around the earth is..

(i) Air helps in the....................................of aircrafts,birds and boats.

(j) Animals in water use....................................dissolved in water.

Q.4. Tick (√) the correct statement and cross(x) the wrong ones.

(a) The upper boundary of the troposphere is called the tropopause.
(b) The French scientist, Lavoisier prepared oxygen in 1771.
(c) Oxygen can be prepared in the laboratory by heating potassium chlorate and manganese dioxide.
(d) Oxygen gas is light blue in colour.
(e) Non-metal oxides are basic in nature.

Q.5. Answer the following :

(a) Introduce an inverted glass in the bucket of water. The water does not rise in the glass. Why?..

....

(b) Have you seen dust particles moving in a beam of light in a dark room? Where do these dust particle come from?..

....

(c) Blow some air from your mouth with the tube containing lime water. After some time it changes to milky, why?..

....

(d) Divers carry oxygen cylinders when they go deep into the sea, why?

....

....

(e) Fish and many other animals live in water. Where do they get oxygen for respiration from ?..

....

(f) In a burning candle, smoke rises up.Why ?

....

....

Q.6. Mention five uses of air.

....

....

Q.7. How will you show that air is matter ?

....

Q.8. Write short answers :

(1) Mention two objects which are inflated by air and are used commonly.

....

(2) Why do mountaineers carry oxygen cylinders with them ?

....

(3) We put the lid back on the spirit lamp after using it in the laboratory. What happens then, and Why ?

....

....

Q.9. How will you show that exhaled air contains more carbon dioxide than ordinary air ?

....

....

....

....

Q.10. Why does a candle continue burning if it is not covered with a glass bottle ?

....

....

CHAPTER 10

WATER

We use water for many purposes such as drinking, washing, cleaning, generating electricity, transporting men and goods, putting out fire etc. All organisms use water and depend on water for their life.

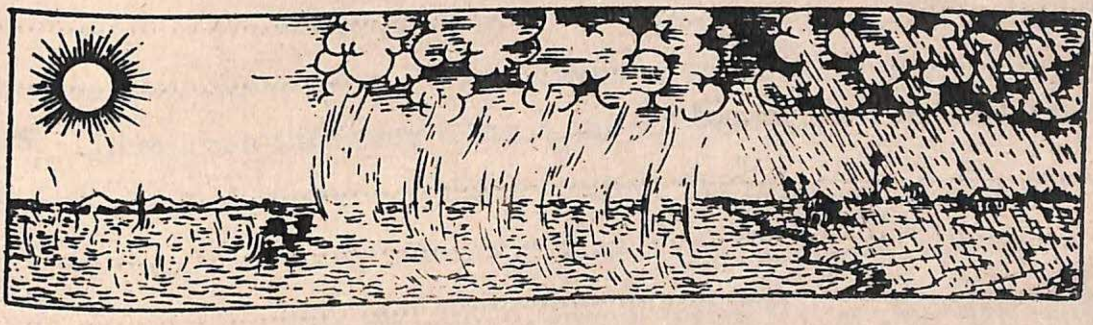
Two-thirds of the earth's surface is covered with water. We obtain water from a large number of sources e.g. wells, ponds, tanks, lakes, rivers, springs and sea. Water from different natural sources is not the same.

In the water cycle water evaporates from a large number of sources, condenses, forms the cloud and again comes back on the earth in the form of the rain.

There are two types of water—Hard water and Soft water.

Water possesses several special properties that make it so useful. No life would be possible without water. Man always chose to live in places that were near water.

We can prevent water from becoming impure.



Q.1. Answer the following questions :

(a) What is ground water ?

....

....

....

....

(b) What gives rise to water currents ?

....

....

....

....

(c) Mention three sources of water.

....

....

....

....

(d) How are springs formed ?

....

....

....

....

(e) How are rivers formed ?

....

....

....

....

(f) What is the largest source of water on earth ?

....

....

Q.2. "Water is the essence of life." Comment with the help of some good examples.

....

....

....

....

....

Q.3. What are perennial rivers ?

....

....

....

....

Q.4. How is water stored ? Name three important places where water is stored for different purposes?

....

....

....

....

....

Q.5. List the main differences between soft and hard water?

....

....

....

....

....

Q.6. Which is the purest form of natural water?

....

....

Q.7. How does frozen water help the acquatic life in polar regions?

....

....

....

....

Q.8. Why do we find green plants quite deep in sea water?

....

....

....

....

Q.9. How will you determine the melting point of ice?

....

....

....

....

Q.10. Why is the water cycle important?

....

....

....

....

Q.11. Name two liquids which are lighter than water.

....

....

....

Q.12. Name two liquids which are heavier than water.

....

....

....

Q.13. Name two water-borne diseases.

....

....

....

Q.14. Why is hard water not preferred for washing purposes?

....

....

....

....

Q.15. Why should we protect our forests and grow more trees?

....

....

....

....

Q.16. How are the various impurities removed from water to make it safe for use?

(1) Suspended impurities : ....

....

(2) Undesirable dissolved impurities : ....

....

(3) Harmful bacteria and other small organisms :....................................

....

Q.17. Fill in the blanks with suitable words:

(1) Water occurs in three different forms.........., ...and.............

....

(2) When....................changes to...................., it is called condensation.

(3) Fast moving water has lot of energy called..

(4) Water does not become.......................when we heat it or..................
when we cool it.

(5) ....form of water is..........................than its liquid form.

(6) The hardness of water is due to.................................dissolved in it.

(7) Soap gives...................................lather with hard water.

(8) Water dissolves many substances, so it is a good.................................

□

CHAPTER 11

ENERGY

Energy is the ability to do work. We do various kinds of work. Mechanical work is said to be done when on applying force an object moves through a distance. Mechanical work done depends upon (i) the distance moved by an object and (ii) the magnitude of force applied to move the object. The work done on a body can get stored in it in the form of energy. The stored energy can do work. We have various forms of energy; Mechanical energy (kinetic energy and potential energy), heat energy, chemical energy, light energy , sound energy, magnetic energy, atomic energy etc.

We can change one form of energy into another form. Sun, coal, petroleum, water, high tides, wind, cyclones, earthquakes etc., are the energy sources in nature. Certain materials have the property of combining rapidly with oxygen and releasing a lot of heat in the process. Such materials are called fuels. The fuels we burn commonly are kerosene, wood coal, cowdung etc.

Sun is the main source of energy. Petrol, coal, kerosene, diesel and natural gas are called fossil fuels. Fuels are stored form of solar energy. Our body is constantly changing energy from one form to another. Our body needs fuel which is supplied in the form of food.

Running water, wind, sunlight, coal, wood, natural gas, petrol, diesel and kerosene are some of the sources of energy.

All over the world the energy stocks of stored energy in coal, oil, wood etc; are being used up in running factories, drivings cars, lighting houses etc. It has, therefore, become an urgent problem in the world how to spend energy with care and economy so that it may last for a long period to come.

Coal, petrol, natural gas and diesel are non-renewable sources of energy whereas wind, sunlight, flowing water and biogas are renewable sources.

Q.1. (a) Define energy.

....

....

(b) James Watt observed that steam could be made to move objects. This idea led to the development of the steam engine. Give the names of *three* other agents like steam, which can make things move.

(i) ....

(ii) ....

(iii) ....

Q.2. (a) What is work?

....

....

....

(b) State the factors on which the mechanical work-done depends.

(i)..

(ii)..

(c) State two examples in which no mechanical work is done on a body when a force acts on it.

(i)..

(ii)..

Q.3. (a) Do we come across only one form of energy in our daily life?

....

....

(b) Name the various types of energy.

(i) ....

(ii) ....

(iii) ....

(iv) ....

(v) ....

(vi) ....

(vii) ....

(viii) ....

(ix) ....

(x) ....

Q.4. Complete the following statements:

(1) A coiled snake, ready to spring at its prey, is an example of........................

(2) An arrow let loose from a bow has....................................energy.

(3) Kinetic energy is due to..

(4) Potential energy is due to..

(5) Energy and doing work are.....................................to each other.

(6) ....is always required for doing work or exerting a force.

(7) It is the ....energy hidden in the chemicals of the match head that gives us...............................and...........................when the match is struck.

(8) We obtain...energy from the food we eat.

(9) In India, we have........................plants in Tarapore and in Trombay (Bombay) and these plants convert..........................into..................

(10) The sun and the stars convert..into ....and...............................that we get from them.

(11) In hydel power stations,the energy of...............................is used.

(12) Wind is a..................................source of energy.

(13) Cooking gas is a...fuel.

(14) The torch cell is a source of...energy.

Q.5. In each of the following items , encircle the number preceding the word or phrase that best completes the statement:

(i) A compressed spring represents

(a) Kinetic energy (b) work (c) potential energy (d) a part of kinetic and a part of potential energy.

(ii) Water in a dam leading to a waterfall possesses

(a) Potential energy (b) kinetic energy (c) neither P.E. nor K.E. (d) partly K.E. and partly P.E.

(iii) When a simple pendulum vibrates, then at the mean position

(a) its total energy is potential
(b) its total energy is kinetic
(c) it has both potential and kinetic energy
(d) it has neither potential nor Kinetic energy.

(iv) A labourer raises bricks to the top of a building

(1) by going up a vertical spiral stair-case

(2) by going up a slanting ladder.

Then,

(a) he uses more energy in the first case
(b) he uses more energy in the second case
(c) he uses the same amount of energy in both the cases
(d) he does not use energy in either case

(v) Whenever Rajdhani Express approaches a railway station, its speed slows down. Thus its kinetic energy (a) increases (b) decreases (c) does not change at all

Q. 6 What kind of energy is possessed by the following?

(a) A bullet fired from a rifle ....
(b) A bent bow ....
(c) A watch-spring wound up ....
(d) A ball placed on the roof ....
(e) Compressed air ....
(f) Striking a nail with a hammer ....
(g) A soft tennis ball moving with high speed ....
(h) A stretched rubber catapult with a stone on it ....
(i) A moving axe that enters the wood and splits it ....
(j) A simple pendulum held by hand at one of its extreme positions ....
(k) Chemicals of a match head ....
(l) A bullock pulling a cart ....
(m) An ant carrying a grain of sugar ....
(n) Petrol used in cars and trucks ....
(o) A loud thunder ....
(p) A vibrating sitar ....
(q) A lighted electric bulb ....
(r) A vibrating atom ....
(s) The sun ....
(t) Water stored in a reservoir at a height ....

Q. 7. Give *one example* of each of the following transformations *i.e.* change of one form of energy into another :

(a) Potential Energy to Kinetic Energy : ....

....

(b) Kinetic Energy to Potential Energy : ....

....

(c) Heat Energy to Kinetic Energy : ....

....

(d) Kinetic Energy to Heat Energy : ....

....

(e) Kinetic Energy to Sound Energy : ....

....

(f) Motion Energy to Electrical Energy: : ....

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(g) Electrical Energy to Motion Energy : ....

....

(h) Electrical Energy to Sound Energy : ....

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(i) Sound Energy to Electrical Energy : ....

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(j) Chemical Energy to Electrical Energy : ....

....

(k) Electrical Energy to Chemical Energy : ....

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(l) Electrical Energy to Heat Energy : ....

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(m) Heat Energy to Electrical Energy: : ....

....

(n) Electrical Energy to Light Energy : ....

....

(o) Light Energy to Electrical Energy : ....

....

(p) Chemical Energy to Heat Energy : ....

....

(q) Heat Energy to Chemical Energy : ....

....

(r) Chemical Energy to Motion Energy : ....

....

Q.8. Why does loss of some energy occur whenever one form of energy converts into another form?

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Q.9. "The sun is the main source of energy on the earth." Explain this statement.

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Q.10. (a) What are fuels?

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(b) Name *four* commonly used fuels.

(i) ....

(ii) ....

(iii) ....

(iv) ....

(c) What is atomic energy?

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Q.11. (a) Why has man always looked for new sources of energy?

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(b) How have the discoveries of new sources of energy made the life of a large number of people around the world so much easier and more comfortable?

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Q.12. (a) Name three new natural sources of energy that man has not yet been able to harness.

(i) ....

(ii) ....

(iii) ....

(b) Do we have unlimited amount of natural fuels in our country (or on the earth)? Explain.

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(c) How can we practise economy in the use of energy in our daily life? Give at least four examples.

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Q.13. What are the various sources of energy in nature?

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Q.14. Match the statements in Column A with those in Column B by drawing indicating lines.

Column A	*Column B*
(1) Wind	(1) are the new sources of energy.
(2) Coal, Petroleum,Electricity and Atomic Energy	(2) contains chemical energy.
(3) Explosive powder	(3) is a gigantic natural atomic power plant.
(4) The Sun	(4) is a very feeble type of energy.
(5) Light	(5) is a source of energy.

Q.15.(a) When we say, "We use energy", what do we really mean?

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(b) State the relationship between work and energy.

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Q.16. (a) How do we obtain muscular energy from the food we eat ?

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(b) Give examples where we can make better use of

(i) muscular energy of man

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(ii) muscular energy of animals.

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Q.17. Write 'T' against those statements which are true and 'F' against those which are false:

(i) Work done is independent of the magnitude of force.
(ii) A body possessing energy is capable of doing work.
(iii) Whenever a force is applied on a body, mechanical work is done on it.
(iv) If a body is lifted above the ground level, its energy increases.

Q.18. Name the source of energy in a hydel power station and a thermal power station.

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Q.19 (a) What is meant by renewable sources of energy?

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(b) Name three renewable sources of energy.

(i) ....

(ii) ....

(iii) ....

(c) Why should we prefer the renewable sources of energy to the non-renewable sources?

OR

Why are hydel power stations preferred to thermal power-stations? Give three reasons.

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Q.20.(a) Name two devices which work on the solar energy.

(i) ....

(ii) ....

(b) Name two devices which work with the help of electric energy.

(i) ....

(ii) ....

(c) Name three sources of chemical energy.

(i) ....

(ii) ....

(iii) ....

(d) Name two fossil fuels.

(i) ....

(ii) ....

(e) Name the sources of energy for a windmill and an electric fan.

(i) Windmil

....

(ii) Electric fan

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Q.21. Explain how the energy from the sun gets stored in wheat.

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Q.22. How the energy from the sun gets stored in salt from sea-water?

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Chapter 12

Balance in Nature

All living organisms depend on each other to maintain balance in nature.

Human beings are dependent on plants and other animals for various reasons. Plants too depend on animals, and animals depend on plants. This is how the link is made in the living world.

Food chains and food webs form a very strong link between different organisms.There is a relation of concept. Human beings are very selfish for their own comforts. They are continuously disturbing the balance in nature. With increasing population, increase in the number of motor vehicles and factories, the pollution is increasing. Pollution badly disturbs the balance in nature.

For happy living on earth, balance in nature must be maintained.

Q.1. Fill in the table:

Names of plants useful to you	Animals useful to you	Plants harmful to you	Animals harmful to you

Q.2. Make a list of products you directly get from plants for your use :

1. ....
2. ....
3. ....
4. ....
5. ....
6. ....
7. ....
8. ....
9. ....
10. ....

Q.3. Make a list of products you directly get from animals for your use.

1. .... 6. ....

2. .... 7. ....

3. .... 8. ....

4. .... 9. ....

5. .... 10. ....

Q.4.(i) What is a prey? ....

....

(ii) What is a predator ? ....

....

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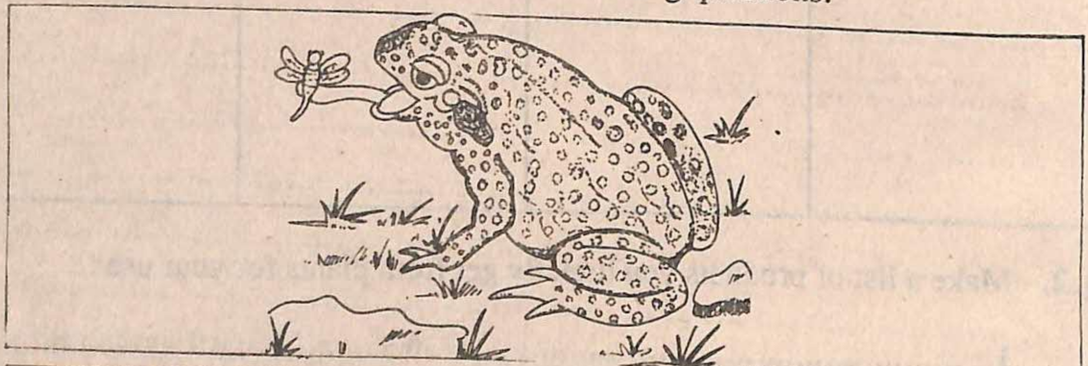
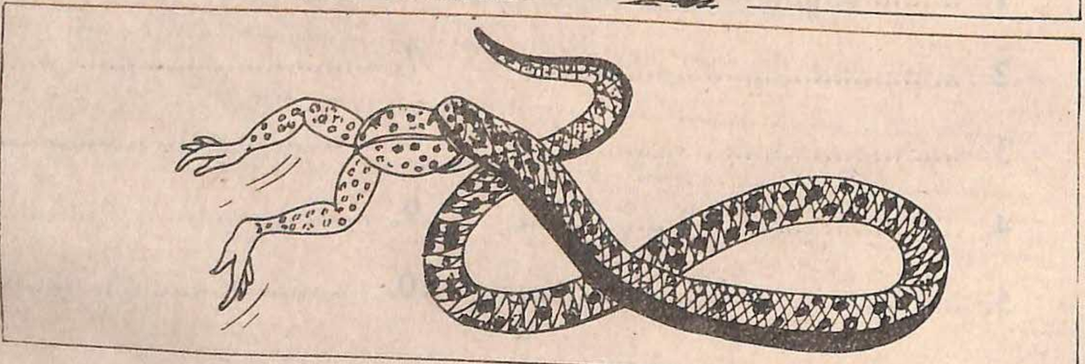
Q.5. Observe these pictures and answer the following questions:





(i) Name the preys in the above pictures.

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(ii) Name the predators in the above pictures.

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Q.6. How do green plants help the living world?

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Q.7. How are micro-organisms useful to us?

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Q.8. How are micro-organisms harmful to us ?

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Q.9. How are the following animals directly useful to us ?

Fish..

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Birds..

....

....

Insects..

....

....

Q.10. Define the following terms :

(i) Omnivores

....

....

(ii) Herbivores

....

....

(iii) Insectivores

....

....

(iv) Carnivores.

....

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(v) Symbiosis.

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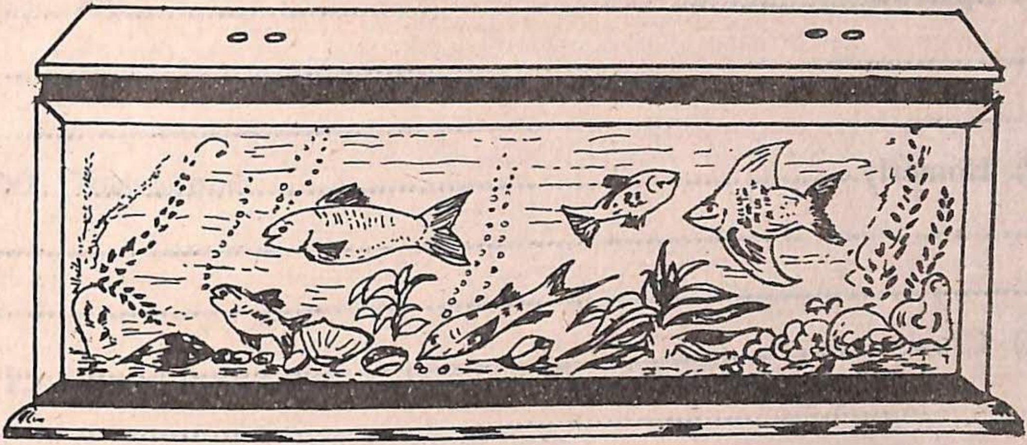
Q.11. Label the picture given below, and answer the following questions :

(a) *Label the different parts in the picture :*



(b) Why is it essential to have green plants in an aquarium?

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(c) What kind of fish are put in an aquarium? Give examples.

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(d) Why do we have bulbs in an aquarium?

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(e) What does an aquarium show you?

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....

(f) Often small worms are added in an aquarium, why?

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Q.12. In what ways are the following animals associated with man:

(i) Sparrow..

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(ii) Homefly..

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(iii) Crow..

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(iv) Eagle...

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(v) Mosquito..

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(vi) Butterfly...

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(vii) Lizard...

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(viii) Cockroach..

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(ix) Dog..

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(x) Grasshopper..

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Q.13. What do you understand by the term immortal?

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Q.14. All the food that any animal eats comes directly or indirectly from plants. Do you agree with the above statement? Give reasons.

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Q.15. What will happen if none of the animals ever died?

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Q.16. Complete the following food chains:

(i) ....,Cow...

(ii) Secretory bird,.......................................,.........................,insects,......................

(iii) Shark,...............................,...

(iv) Man, ...,grain from plants.

Q.17. Make a simple food web.

Q.18. Fill in the blanks:

(i) All food chains begin with..

(ii) The.......................in......................is disturbed if a food chain is broken.

(iii) A...............................is a primary..

(iv) A.......................carnivore in a food chain is called...............consumer.

(v) Bacteria and fungi are called..

(vi) A substance is called a...............................,when its presence causes harm to............................beings.

Q.19. Why does man cuts down forests?

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Q.20. What harm is caused by the cutting down of forests?

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Q.21. What is drought?

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Q.22. What does drought lead to?

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Q.23. What is a pollutant?

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Q.24. Is CO_2 a pollutant of air ?

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Q.25 How do air, water, and soil get polluted?

Air...

....

....

....

Soil..

....

....

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Water...

....

Q.26. What are the harms caused by

Air Pollution..

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Water Pollution..

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Soil Pollution..

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Noise Pollution..

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Q.27. How are you helping in checking pollution in your surroundings ?

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CHAPTER 13

THE UNIVERSE

The heavenly objects that we see with the naked eye may be broadly classified as stars, planets, satellites, asteroids, meteors (shooting stars) and comets.

The stars are very large objects having the shape of a ball. The stars appear to be twinkling whereas the planets do not. The sun is also a star. It is the nearest star to the earth. The stars give out their own light. The planets rotate round the star and they get all their light and heat from the star. Our earth is a planet.

The stars are very far away from one another . Distances between heavenly objects are measured in the unit of *light year*. There are millions of galaxies in the space. The sun is one of the stars in our Milky Way.

All the objects in the universe are in continuous motion. A group (or cluster) of stars that form a pattern in the sky is called a constellation. All planets and stars, except the pole star, appear to move from east to west because the earth moves from west to east. It is convenient to imagine that the stars are points on a huge sphere called the *celestial sphere,* with the earth at the centre. This imaginary sphere appears to rotate round the earth from east to west.

Our solar system consists of nine planets, asteroids, comets and meteors. Different planets revolve round the sun in different orbits and rotate on their own axes.

Meteors are heavenly objects which burn up in the earth's atmosphere producing an intense streak of light. Meteorites are those meteors which do not completely burn up and reach the earth.

Satellites revolve around the planets. Solar system is only a small part of the universe. The universe is very very vast. We are still not able to answer: "Is the universe finite or is it limitless"?

Q.1. Fill in the blanks:

(i) The sun with its planets is one system, called the..................................

(ii) The...........................spins around itself,with its axis passing through the north and south poles and also it moves around...............................in a nearly..................................path.

(iii) Shooting stars are called...

(iv) All planets appear to move from..............................to.................. ....

(v) Our galaxy is called..

(vi) The moon is a..satellite of the earth whereas Aryabhatta is an..................................satellite of earth.

(vii) The planet which is the farthest from the sun is....................................

(viii) The planet which appears reddish in colour is....................................

(ix) Satellites revolve around the..

(x) ....is the only star which appears stationary.

(xi) ....consists of seven stars.

(xii) ....are a group of stars which have some recognizable shapes.

(xiii) All objects in the universe are in..motion.

(xiv) The.............................is the only source of light and.......................in the solar...system.

(xv) Our earth is a..

Q.2. In each of the following items, encircle the number preceding the word or phrase that best completes the statement:

(i) Which of the following is the constellation?
(a)The Great Bear (b) Jupiter (c)Comet (d)Mars

(ii) Many a time we see a streak of light in the sky that appears and disappears within seconds. It is called :
(a) an asteroid (b) a meteor (c) a comet (d) a satellite.

(iii) Which of the following planets has the maximum distance from the sun?

(a) Mercury (b) Earth (c) Uranus (d) Pluto (e) Venus

Q.3. (a)Name the various planets in our solar system in order of their distance from the sun:

(i) .... (ii) ....

(iii) .... (iv) ....

(v) .... (vi) ....

(vii) .... (viii) ....

(ix) ....

(b) How does a planet differ from a star?

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....

....

....

Q.4 (a) What are constellations?

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....

....

(b) Name *three* constellations?

(i) .... (ii) ....

(iii) ....

Q.5 (a) What is a satellite?

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....

(b) Distinguish between natural satellite and artificial satellite. Is moon a natural satellite?

....

....

....

....

....

(c) Name three artificial satellites?

(i) .... (ii) ....

(iii) ....

(d) Which is bigger–a planet or a star?

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Q.6. (i) Which planet is nearest to the Earth and which one is farthest?

(a) Nearest to the Earth..

(b) Farthest from the Earth...

(ii) How much time does the earth take to complete one rotation on its own axis and one revolution round the sun?

(a) On its own axis..

(b) Round the sun..

(iii) Which planet is the smallest and which one is the largest?

(a) The smallest planet is..

(b) The largest planet is...

(iv) Name the planet which appears brightest in the sky.

....

Q.7. Name two Indian Astronomers.

(i) .... (ii) ....

Q.8. Why do the sun, the moon, most stars and all the planets appear to rise somewhere in the east and set in the west ?

OR

In which direction do stars appear to move in the sky? Why do they appear to move in this direction?

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Q.9. (a) Why does the pole-star not appear to move?

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(b) How does a navigator make use of the pole-star to find the direction?

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Q.10. How big is the sky? Does it have a boundary or is it limitless?

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Q.11. Name the constellation which helps us to locate the pole star.

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Q.12. State whether the following statements are True or False?

(i) Comets are the members of our solar system. (True/False)
(ii) Pluto is the smallest planet of the solar system. (True/False)
(iii) Orion is a member of our solar system. (True/False)
(iv) Ursa Major is not a constellation. (True/False)
(v) One *light year* is the distance travelled by light in one year. (True/False)

Q.13.(a) What are shooting stars?

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(b) What are comets?

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(c) What is the difference between a meteor and a meteorite?

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Q.14. Why do stars twinkle and planets do not?

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Q.15. Many stars are much larger than the sun. Why do these appear much smaller than the sun?

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Q.16. A star is thousand light years away from the earth. What does it mean?

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Q.17. What is a galaxy?

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Q.18. (a) What is the speed of light?

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(b) What is a light year?

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....

(c) One light year = ...km

(d) Why is the distance between stars expressed in light years?

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Q.19. Describe the procedure to locate the pole-star with the help of Ursa Major.

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Q.20. Mention three uses of an artificial satellite.

(i) ....

(ii) ....

(iii) ....

Q.21. Name two objects other than planet, which are members of the solar system.

(i) ....

(ii) ....

Q.22. Which constellation contains the maximum number of bright stars?

....

....

....

Q.23. Draw the shapes of the following constellations showing the position of their stars:

(i) Ursa Major (ii) Orion

(i) URSA MAJOR:

(ii) ORION:

☐